AIRXCHANGE

CASE STUDY

Rochester YMCAs Rely on Energy Recovery Ventilation for Affordable Fresh Air

Design Objectives at YMCA Facilities

The YMCA Association of Greater Rochester, New York, is one of the oldest associations in the United States. They currently have fifteen thriving locations built over the last century that range in size from 50,000 to more than 70,000 square feet.

While the size and age of the facilities vary, high standards for energy efficiency and indoor air quality (IAQ) are key objectives in the design, construction, and operation of these buildings. "Good indoor air quality is very important," notes Eastside Family YMCA Executive Director Kevin Fitzpatrick. "Our members are quick to note if there is a problem."

Indoor air quality is a constant challenge at a fitness center. Pollutants are present everywhere there are people, carpeting, furniture, and cleaning chemicals. In some respects, the effects of indoor air pollution are heightened in fitness cen-ters because occupants are breathing heavily during workouts and inhaling more air through their mouths; this air foregoes the filters in the nose and travels deeper into the lungs.

There is also a risk of mold growth and odor from sweaty garments and towels in the locker room, or from moist air emanating from a swimming area.

The work to mitigate the odors and air quality hazards asso-ciated with any fitness center require diligence and careful planning. For example, the Eastside Family YMCA, the new-est and largest branch in the Rochester Association, opens as early as 5:00 a.m. and closes at 10:30 p.m. on weekdays.

After hours, cleaning crews work to refresh the space while ventilation operates 24/7 to keep the facility fresh and odor-free.

Even before the day-to-day upkeep of a facility, the managers of these modern fitness centers proactively specified HVAC solutions at the construction or renovation phases to ensure a clean and healthy environment.

High Ventilation Rates Provide High IAQ

Exhausting contaminated air and continually replacing with fresh outside air is an effective

method of maintaining a healthy indoor environment[1]. The drawback to high ventilation rates is increased heating and cooling costs to replace the exhausted air. Facilities can marginalize these increased costs, however, by utilizing an energy recovery ventilation (ERV) solution that can reduce outdoor air energy costs up to 80%.

All branches of the Rochester YMCA Association use ERV systems to overcome the outdoor energy challenges pre-sented by Rochester's cold winters and hot, humid summers. According to Christopher Marks, Vice President of Properties, the association leadership team prefers Airxchange for all new installations because of their excellent reliability. "Airxchange wheels have proven reliable in multiple buildings over a number of years. We will specify Airxchange wheels in all buildings that utilize an ERV. "

Including ERVs in their buildings during construction or reno-vation allows the HVAC system designers to specifysmaller and more efficient heating and cooling units, reducing the up-front cost and enabling the high ventilation rates that provide clean, healthy air.

The Eastside facility is an award winning building, recog-nized by the national YMCA as a "Top Ten" building in the USA. At that facility, the Child Watch, gym, locker rooms, and community spaces are all ventilated using energy recovery wheels as part of the commercial unitary rooftop system. "In the eight years since this HVAC system was installed there have been no maintenance issues, and system reliability has been excellent," adds to Fitzpatrick.

The robust energy recovery performance of the Airxchange wheels also resulted in them being specified for an upcoming addition to the same facility. Christopher Marks notes that the Eastside Family YMCA's 35,000-square foot addition is now under construction. When the addition is completed, the facility will be a total of 150,000 square feet, making it the largest branch in the region.

1. "Indoor Environmental Quality" — Centers for Disease Control (2013) http://www.cdc.gov/niosh/topics/indoorenv/buildingventilation.html

Value of New Energy Recovery Wheels at *Eastside Family YMCA*

Location: Rochester, NY
Project Dates: 2006 (initial construction - 70,000 sq. ft.)
2015 (renovation - 35,000 sq. ft.)
Project Scope: 292 tons (cooling)/3860 MBH (heading)

Measurement	With ERV Wheel	With ERV Wheel
Total Outdoor Air (CFM):	33,940	33,940
Mechanical Load - Cooling (tons)	33	125
Mechanical Load - Heating (BTU/Hour)	679,844	2,832,000
Demand Reduction (KW)	110"	0
Estimated Annual Operating Savings:	$63,150*	0

**To study the impact of energy recovery wheels in any space, visit airxchange.com for a variety of simulation and design software tools.*

The Choice of System Designers

According to the principal engineers who designed the addition to the Eastside YMCA, Kathleen VanderZwaag and Casey Bernhard of LaBella Associates, because of the many energy saving measures used on the project, including energy recovery, the facility was awarded rebates from the New York State Energy Research and Development Authority (NYSERDA) that assisted in reducing the up-front cost of the new space. They also note that LaBella uses ERVs in any building where repurposing the energy in exhaust air allows them to reduce the size of heating and cooling units.

About Airxchange

Airxchange has 35 years of extensive experience in the energy recovery industry. Our mission is to design and manufacture high quality products that perform reliably and effectively for the life of the HVAC system, reduce energy consumption, and improve indoor air quality. The addition of high-tech materials and innovative designs to a technology based on fundamental scientific principles has earned us the trust of our valued OEM customers. We will continue to innovate and support our customers to meet evolving market demands for energy recovery ventilation technology. Visit airxchange.com for more info.